

The invention provides novel mutations, mutation combinations or mutational profiles of HIV-1 reverse transcriptase and/or protease genes correlated with phenotypic resistance to HIV drugs. More particularly, the present invention relates to the use of genotypic characterization of a target population of HIV and the subsequent correlation of this information to phenotypic interpretation in order to correlate virus mutational profiles with drug resistance. The invention also relates to methods of utilizing the mutational profiles of the invention in databases, drug development, *i.e.*, drug design, and drug modification, therapy and treatment design, clinical management and diagnostic analysis.